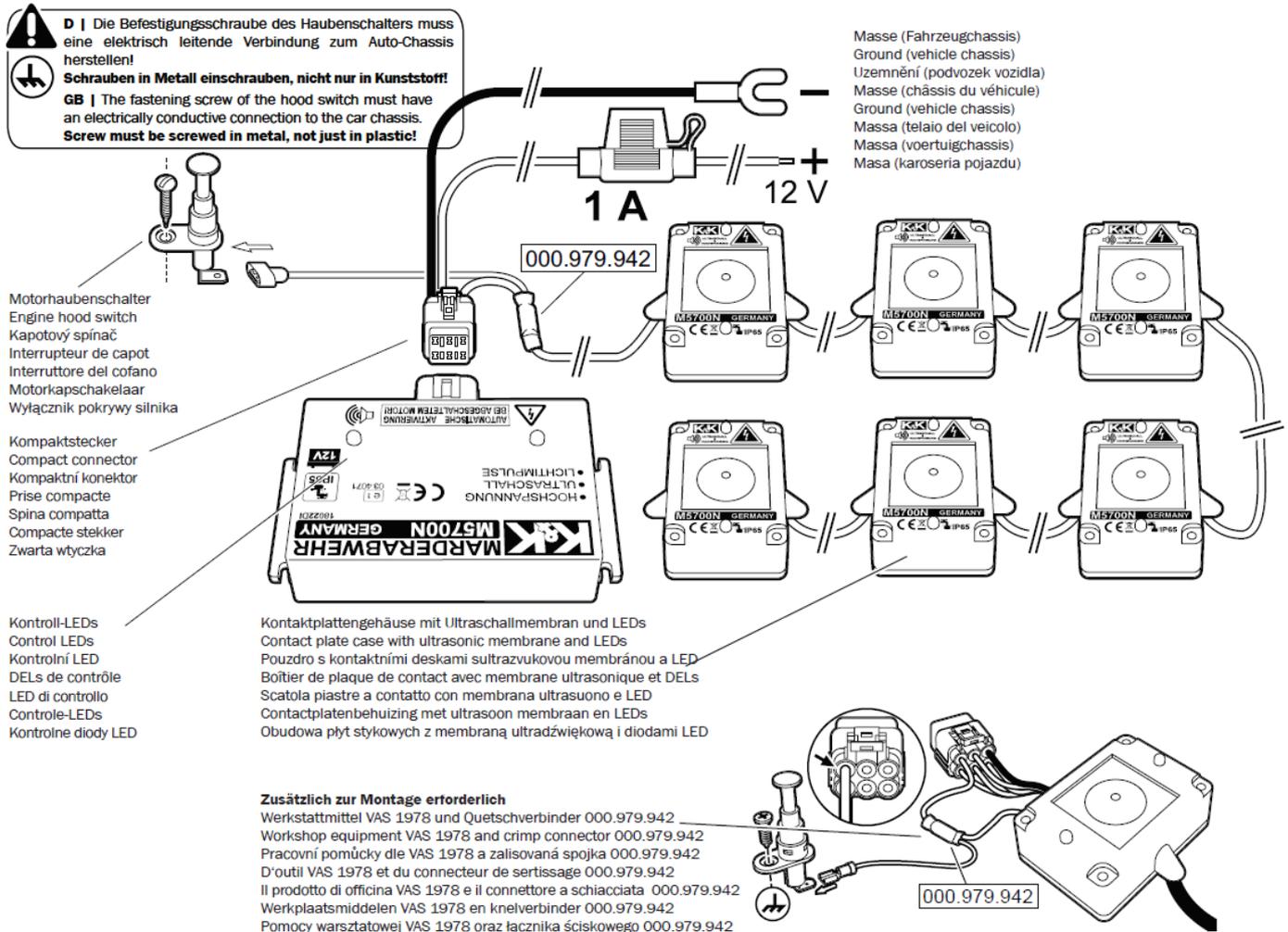




# M5700N A novelty in marten control - waterproof contact plate-combined device according to IP65

incl. hood safety switch with immediate discharge



## Waterproof according to IP65:

Up to now the entry zone of the marten could only be secured to a limited extent as the marten defense devices had to be installed in the engine compartment protected against dirt and splash water. Due to the achievement of the protection class IP 65\* (waterproof and dirtproof) at the control unit and contact plates, the M5700N may now be mounted directly at the animals' entrance openings towards the engine compartment.

## Deterrence by high-voltage, ultrasound and light pulses:

This top device combines 3 mechanisms to scare off martens: 6 encapsulated waterproof loudspeakers emit loudly pulsating lifelike sinusoidal ultrasonic sounds via large metal membranes. This takes place at an irregularly changing frequency, in order to avoid that the marten gets accustomed. Simultaneously, the membranes are loaded with high-voltage of approx. 200 - 300 V and scare off the marten in case of contact with an electric shock, which is strong for martens. The electric shocks are adjusted in such a manner that they chase away the marten but do not kill it. 2 each = 12 pulsating light-emitting diodes at each loudspeaker satellite irritate the nocturnal animal in addition.

## Further advantages:

Very low current consumption (below 10 mA) \* Suitable for CAN bus/hybrid \* Built-in battery monitor (disconnection in case of voltage drop to below 11.5 V) \* High sound pressure \* Engine hood switch for

immediate discharge of the highvoltage plates \* Compact connector between control unit and contact plates (facilitated exchange and immediate discharge during maintenance work) \* Modern current-saving microelectronics enable a small and compact control unit, which may be easily installed. \* e1 mark \* Automatic switching on when the car is parked. A connection to terminal 15 is no longer necessary, which reduces the assembly costs considerably!

### Information on the function:

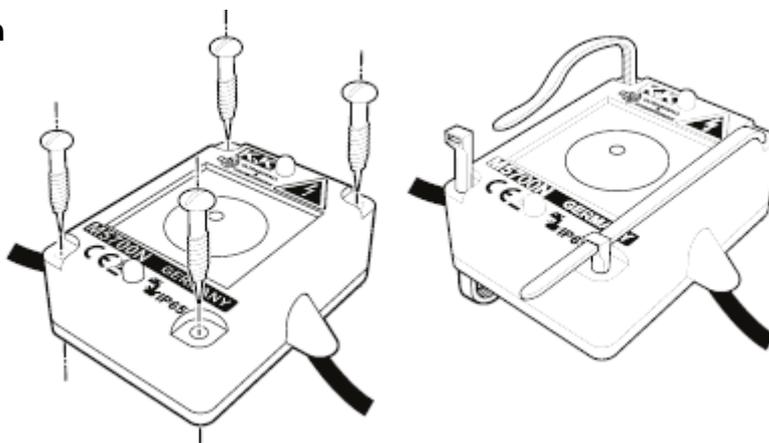
Martens find the produced ultrasonic sounds very annoying and try to avoid them, if possible. Should, nevertheless, a very aggressive marten enter, it will get a strong strike when crawling through the engine compartment if it touches one of the installed high-voltage plates with the snout or paws. It takes a short time then until the highvoltage has built up again. During this time the marten may escape. It will not be killed through the electric shock.

### Assembly instructions:

Please remove the fuse of the device from the fuse holder during the assembly. The control unit and loudspeaker satellites have to be fixed in the engine compartment of the motor vehicle in such a manner that they do not overheat due to a too strong heat radiation (e.g. close to the exhaust manifold) and may not be covered with a dirt layer. The position should be chosen strategically according to the entrance points and paths of the marten. At the same time the loudspeakers should be installed in such a way that the ultrasonic metal membrane points as free as possible to the places in the car at risk of being bitten. Ultrasound extends as light. "Sound shadows" due to obstacles limit the sphere of action. For this reason, there is a total of 6 loudspeakers in order to distribute the sound widely. The metal surfaces of the loudspeakers should be mounted close to conductive parts of the car but should not touch them (minimum distance 10 mm) as the charged high-voltage would be short-circuited in that case!

The cables of the control unit are connected according to the circuit diagram (see above): The negative cable is connected electroconductively with the chassis of the vehicle (negative pole 12 V). The positive cable with the built-in fuse holder is connected with the positive pole of the electrical system of the car and the high-voltage cable is adjusted to the engine hood switch using the workshop equipment VAS 1978 and crimp connector 000.979.942. In order to cause an immediate discharge of the plates when opening, the fastening screw of the switch must establish an electrical connection with the chassis. If the switch can only be fixed at plastic material: place a screw eyelet below the screw and connect this with the chassis via a cable. A built-in automatic ensures that the marten scarer only switches on when the motor is off.

### Possible types of installation



### Safety instructions:

The cables have to be laid in such a manner that they may not trigger any short-circuits (the insulation will not be rubbed through or melts due to intense heat). The system should always be mounted in such a way that no fire damage may occur in such cases.

### Setting into operation:

The fuse which was removed from the fuse holder before the assembly is inserted again.

**FOR TESTING, KEEP THE ENGINE HOOD SWITCH PRESSED WITH THE ENGINE HOOD OPEN.**

If everything has been connected correctly and the vehicle is in parking position, the high-voltage builds up at the contact plates. Now nobody must touch the charged loudspeakers! The LEDs on the loudspeakers as well as the LEDs at the control unit must flash. The device constantly checks the presence of high-voltage and indicates this by the LED marked accordingly. If you turn on the motor now, the marten scarer must disconnect (LEDs turn off).

**Ultrasound is not audible to men. Also here the operativeness is indicated by the flashing LED.**

**Please stick the included yellow warning adhesive label in a well visible place in the engine compartment (e.g. on the air filter case).**

#### **Hazard note for maintenance work**

It is absolutely necessary to install the hood safety switch! Otherwise the high-voltage would still be present at the contact plates for up to 1 minute after turning the device off by removing the fuse or installation of another switch. The integrated charging capacitor requires this time for the discharge. During this time it may be dangerous for ill persons or people at risk of shock if they touch the car chassis and the metal surface of the loudspeakers at the same time (electric shock):

You should point to this risk by fixing the warning adhesive label in the engine compartment. With built-in engine hood switch the high-voltage plates are immediately volt-free when opening the engine hood.

#### **Intended use:**

To chase away martens from motor vehicles or rooms.

#### **Check list for troubleshooting:**

**FOR TESTING, KEEP THE ENGINE HOOD SWITCH PRESSED.**

If the high-voltage control lamp does not flash, this indicates that there is no more high-voltage. If the LEDs flash, the marten scarer is switched on and receives current. If the high-voltage LED does not flash, there is probably a short-circuit between one or several high-voltage metal loudspeaker domes and the vehicle ground or an electroconductive tube. It may also be humidity (splash or condensation water), which short-circuits the metal hood with the vehicle chassis (leakage currents). Such mistakes should be corrected. Then the high-voltage control lamp flashes again.

The LED marked with the loudspeaker symbol in the control unit checks whether the ultrasonic sound generator functions (flashes irregularly at longer intervals).

Or the device has turned off because the motor is running/the ignition is on. The automatic switching on and off functions with a delay of some seconds! When starting up for the first time, it may happen that it takes up to 3 minutes until the high-voltage has built up.

Are all contacts in the plug connector towards the basic device straight? Or has a pin been bent to the side by being plugged in crookedly? Has the plug connector been assembled in the right direction? (There is a latch nose on the side of the plug connector.)

#### **To be observed before installation – functional test:**

All devices are carefully checked during and at the end of production. Please repeat this test before installation: Connect the earth cable with the negative pole of the car battery and the positive cable with the built-in fuse with the positive pole of the car battery (while the motor is off). The highvoltage satellites should lie on an insulating and dry pad (cardboard, wood). Both light-emitting diodes incorporated in the module should flash shortly at an interval of 1 - 12 seconds after 3 minutes at the latest. Then the marten scarer is okay and may be installed. Attention! The highvoltage plates may still remain charged up to 1 minute after switching off. Please discharge at first before the installation (see Instructions for Use under "Maintenance work").

During the test please make sure not to touch the high-voltage plates! If the device does not function despite a positive test, this is clearly due to an assembly error (see Assembly Instructions). We provide a statutory guarantee for the device; we do not assume any costs for assembly and disassembly.

#### **Instruction for releasing the contact plug:**

To make it easier to open the plug, first of all push both parts firmly into each other. Only then press the strap down and pull apart both ends at the same time.

#### **General information:**

If martens have already been in your vehicle, the animals have certainly left scent marks. It is absolutely necessary to neutralize these scent marks before assembling the marten defense. A thorough motor wash

or the K&K scent mark remover item no. 000300 are suitable for this purpose. Furthermore, the animals often leave scent marks identifying their territory on the parking lot below your vehicle. If you always use the same parking lot, these should be removed, too, by using a scrubber and dishwashing detergent. If you do without this measure, the marten might be encouraged to defend its territory.

Our marten scarers with high-voltage contact plates and aggressive ultrasonic sounds are extremely effective in deterring martens. Nevertheless, we cannot guarantee that the marten will be actually scared off in 100% of all cases!

**Disposal:**

This device may not be disposed with the household waste. It has to be disposed at collecting points for television sets, computers, etc. (please ask your local authority or municipal authorities for these collecting points for electronic waste).

**Technical data:**

Operating voltage: 12 V car battery \* Current consumption: <10 mA Ø, built-in reverse polarity protection \* Waterproof: according to IP 65 \* Battery monitor: automatic disconnection when the battery voltage decreases to approx. <11,5 V ±5% \* 6 Ultrasound loudspeakers, connected in phase for optimal sound distribution, cable harness of approx. 4 m ±10% \* Ultrasonic frequency: approx. 22 kHz ±15% sinus (almost lifelike cry of fear of wild animals), pulsating aggressively \* Hood safety switch with immediate discharge of the high-voltage plates \* Frequency change at irregular intervals (hence no habituation effect) \* Angle of radiation ultrasound, in each case: approx. 180° \* Sound pressure: approx. 105 dB ±20% at each of the 6 loudspeakers \* 6 metal membranes with connected high-voltage, distribute electroshocks in case of contact. \* High-voltage for electroshocks: approx. 250 V ±25% \* 2 pulsating LEDs per loudspeaker for additional visual deterrence of the marten. \* Temperature range: approx. -25 - +85°C \* Function displays: 1 slowly flashing LED each for ultrasound and high-voltage (approx. every 4 - 12 sec.) \* Fuse: 1 A \* Water-protected compact connector between control unit and cable harness \* Automatic switching-on only when the vehicle is parked (when the motor is off) \* Very simple connection to the car battery: only connect the positive and negative cable, no further connecting cable! \* Dimensions control unit: approx. 100 x 72 x 26 mm (without fastening clips and socket) \* Dimensions loudspeaker satellites with high-voltage contact plates: approx. 78 x 55 x 28 mm (without cable anti-kink device + LEDs)